BeoLab 7 – 1

Type 6210, 6212

Service Manual
English

German, French, Italian, Spanish, Danish and Dutch versions are available in the Retail System

This Service Center repair guide must be returned with the defective parts/back-up suitcase !

BANG & OLUFSEN

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There is no Brief operation guide in this Service Manual. Instead an english version of the User Guide is enclosed in the back-up suitcase

How to service

Strategy

The speaker is to be serviced in the customer's home.

The static–protective field service kit must always be used when the product is disassembled or modules are being handled.

The repair involves replacement of modules or speaker units, which are supplied in the Back-up suite case.
The replaced modules must be returned for repair at Bang & Olufsen, Module Repair Department.
Fault description must be returned with the replaced modules.
Use the Module Repair form or the form in the Retail Order System, Exchange Module.

Preparations before service

Fault explanation and demonstration

Before troubleshooting is initiated, let the customer demonstrate the fault, if possible.

Recommended tools for service

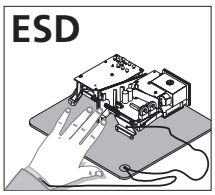
White gloves.
Soft lint-free cloth.

Handling and cleaning

Static electricity

Static electricity may damage the speaker.

Static-protective field service kit.
A static-protective field service kit must always be used when the product is disassembled or modules are being handled.
Follow the instructions in the Service Manual and use the ESD-mat for both old and new modules.



Please note:
When mains voltage on the product is required, remove the connection between the product and the ESD-mat.

The modules must always be connected to the static-protective field service kit or placed in an ESD-proof bag.

Symbol of safety components

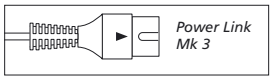
When replacing components with this symbol, the same type has to be used, also the same value for ohm and watt.
The new component is to be mounted in the same way as the replaced one.

Cleaning

Please refer to the chapter "Final check after repair" or use the User's guide.

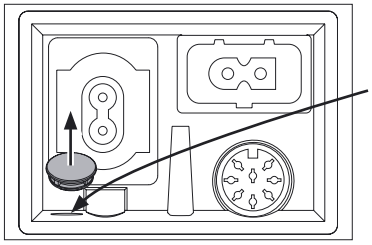
Repair tips

Hum in loudspeaker when no music is played.



The Power Link cable must be of type MK 3 or higher.
The ground connection in Power Link cable lower than MK 3 may be insufficient for optimum sound performance.

Stand by LED

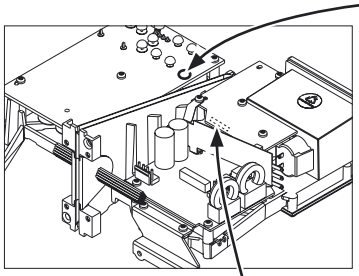


The Standby LED indicates the status of the BeoLab 7 – 1.

Access to Standby LED.

Stand by LED STATUS

Red	BeoLab 7 – 1 is in standby.
Green	BeoLab 7 – 1 is operating.
Orange	BeoLab 7 – 1 is shut down due to thermal overload.
No light	Fuse may be defect, check fuse F501 on PCB5 Pay special attention to the gaskets for baffle



If the LED Status is Orange, turn off and disconnect the mains to the BeoLab 7 – 1.
Wait for minimum 5 minutes for the loudspeaker to cool down.
Connect mains and turn on the BeoLab 7 – 1.

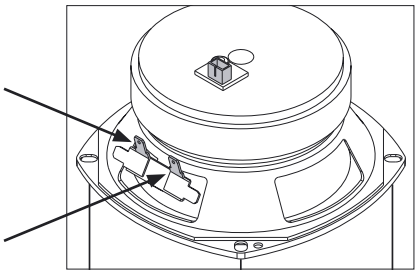
If the LED status still is orange the fault may be due to:

1. Woofer protection - Perform speaker unit check.
2. Tweeter protection - Perform speaker unit check.
3. Midrange protection - Perform speaker unit check.
4. NTC- board or connection on one of the woofers.
   Access the NTC-board by dismantling the woofer.
5. Power supply failure.

No power on outlet

Check Fuse on PCB1
Pay special attention to the gaskets for baffle

Speaker unit check



Measure the impedance of the speaker unit to determine if the fault is caused by a speaker unit.
It is recommended to measure on the terminals on the speaker unit.
The speaker unit must be dismantled from the BeoLab 7 – 1.
Pay special attention to the gasket on the speaker unit.

Speaker unit	Nominal value	Limits
Woofer	6.1 ohm	5.6 - 6.7 ohm
Midrange	6.1 ohm	5.6 - 6.7 ohm
Tweeter	6.1 ohm	5.6 - 6.7 ohm

If the speaker unit is outside the limits, it is defect and must be replaced.

Under normal conditions it is not necessary to replace the gaskets on the speaker unit.

Replacement of spare parts.

Available spare parts

Main chassis, Module 999
PCB2, ICE-Power module
PCB4, Filter module
Woofer
Midrange
Tweeter
Fuse, PCB1 F1

Follow the illustrations on pages 7 - 13.

Speaker unit, woofer

1. Remove the defect speaker unit.
2. Adjust the Filter module or take a note of the speaker value from the label.
   WO; Woofer.
3. Mount the speaker unit.
   The NTC board must be connected, otherwise the BeoLab 7 – 1 will shut down.
4. Adjust the Filter module, if this action has not been performed in step 2.

Speaker unit, midrange or tweeter

1. Remove the defect speaker unit.
2. Adjust the Filter module or take a note of the speaker value from the label.
   TW; Tweeter.
   MR; Midrange.
3. Mount the speaker unit.
4. Adjust the Filter module, if this action has not been performed in step 2.

PCB4, Filter module

1. Remove the PCB4.
2. Transfer the speaker values to the Filter module potentiometers, or take a note of the speaker value position on the defect PCB4.
   WO; Woofer.
   TW; Tweeter.
   MR; Midrange.
3. Mount the new PCB4.
   The NTC board must be connected, otherwise the BeoLab 7 – 1 will shut down.
4. Adjust the Filter module potentiometers, if this action has not been performed in step 2.

Main chassis, module 999

1. No adjustment is required.

Adjustments

Adjustments described

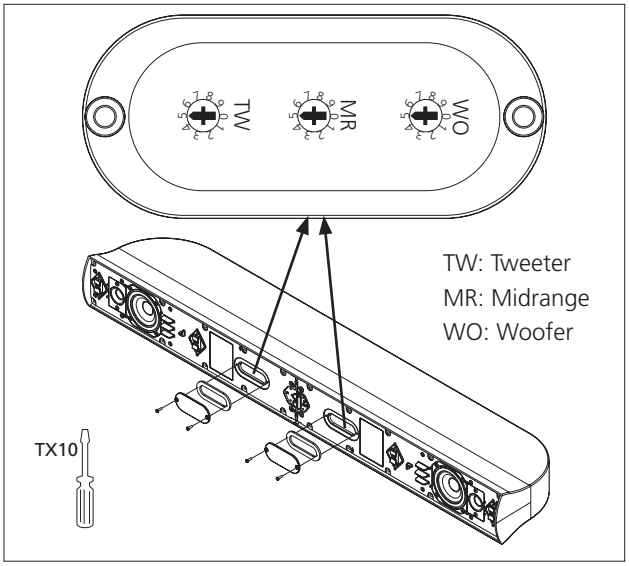
Filter module adjustment on PCB4.

The speaker units are individually measured and the Filter module must be adjusted accordingly.

Adjustment must be performed when either speaker unit or Filter module is replaced.

The gasket on the adjustment lid on the baffle must be replaced whenever adjustment is performed.

Access to adjustment points.



Speaker adjustment table

Speaker value from label on speaker	Switch position
1.8 – 2.3	0
1.3 – 1.7	1
0.8 – 1.2	2
0.3 – 0.7	3
-0.2 – 0.2	4
-0.3 – -0.7	5
-0.8 – -1.2	6
-1.3 – -1.7	7
-1.8 – -2.2	8
-2.3 – -2.5	9

Final check after repair.

Final check after repair.

The final check after repair describes the activities that are needed to ensure the product will be returned in perfect condition to the customer.

The content is:
- Insulation test.
- Restore setup.
- Final cleaning of the product.

Insulation test.

The product must be insulation tested after having been dismantled. Make the test when the set has been reassembled and is ready to be returned to the customer.
Flashover must not occur during the test.

Make the insulation test as follows:
Short-circuit the two pins of the mains plug and connect them to one of the terminals of the insulation tester.
Connect the other terminal to ground on the Power Link socket.

NOTE!
To avoid damaging the product it is essential that both terminals of the insulation tester have good contact.

During the test the current must not exceed 5 mA.
Slowly increase the voltage on the insulation tester until a voltage of 2.5kV(ac) is obtained. Maintain the voltage level for one second, then slowly decrease the voltage to 0V(ac).

Restore setup.

Ensure that,
- The F/W switch is in correct position.
- The plug is inserted over the Standby LED.
- The Power Link cable is a MK 3 or higher.

Check sound.

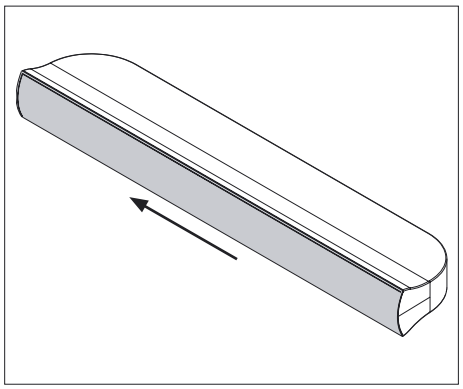
Ensure that all speakers are OK.

Clean the product.

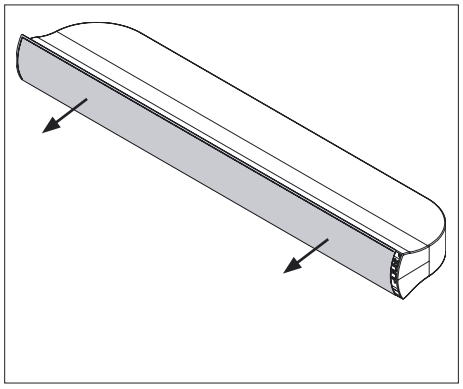
Clean dusty surfaces using a dry soft cloth. If necessary, remove grease stains or persistent with a lint-free, firmly wrung cloth, dipped in a solution of water containing only a few drops of mild detergent such as washing-up liquid.

The loudspeaker front grill may be cleaned with a vacuum cleaner with a soft brush nozzle, and set to the lowest level.

Push front cover to left

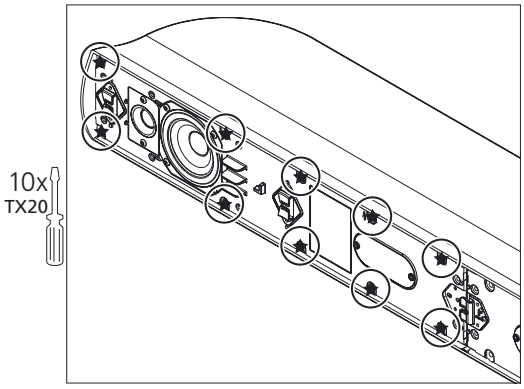


Pull out front cover

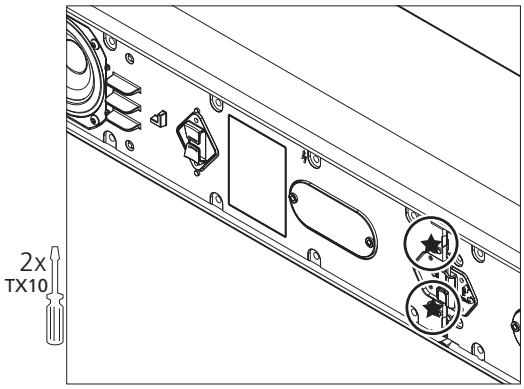


8.1 Remove front cover

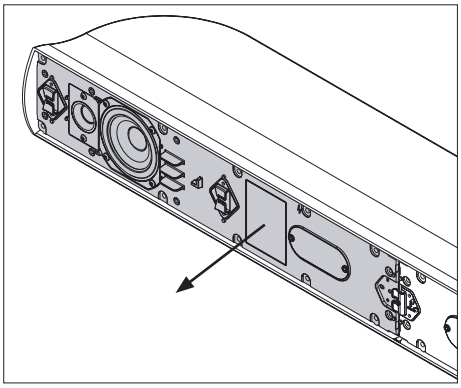
Remove screws



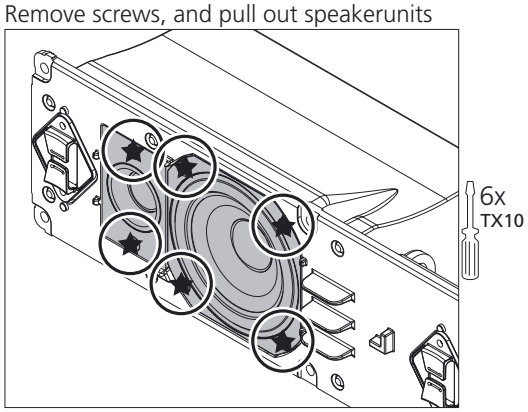
Remove screws



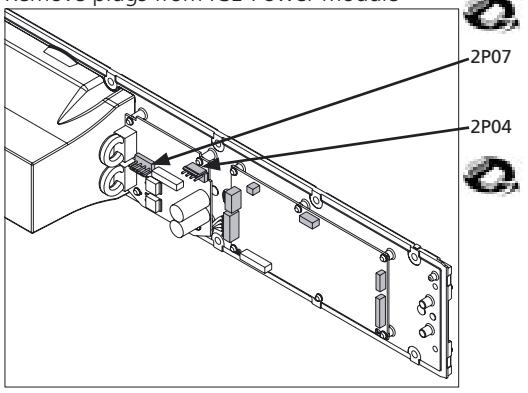
Pull out baffle



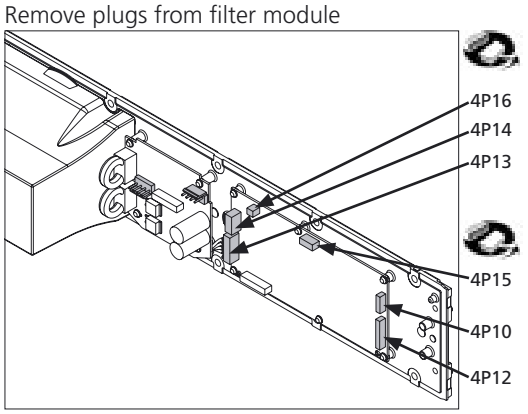
Remove screws, and pull out speakerunits



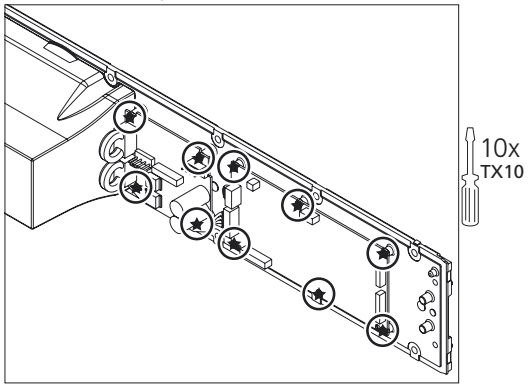
Remove plugs from ICE-Power module



Remove plugs from filter module

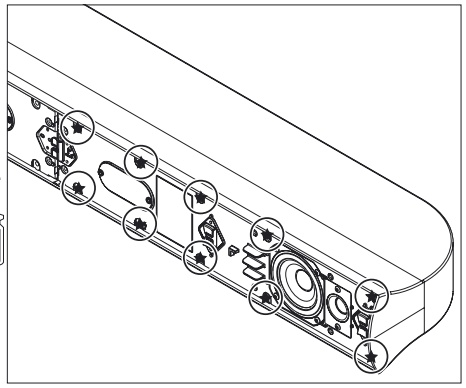


Remove screws, and remove modules

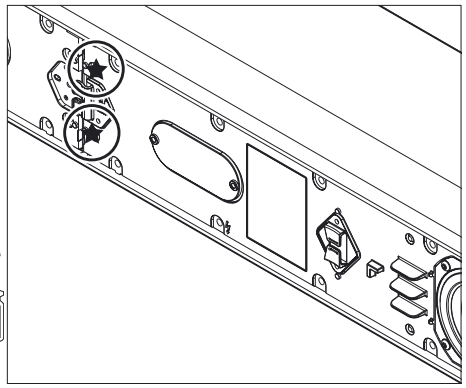


8.1 Remove front cover

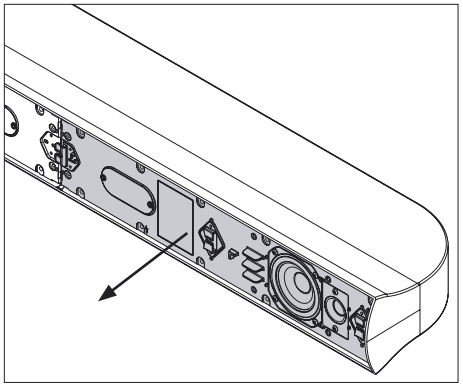
Remove screws



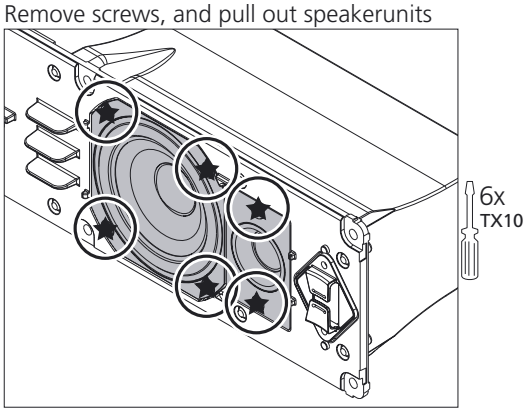
Remove screws



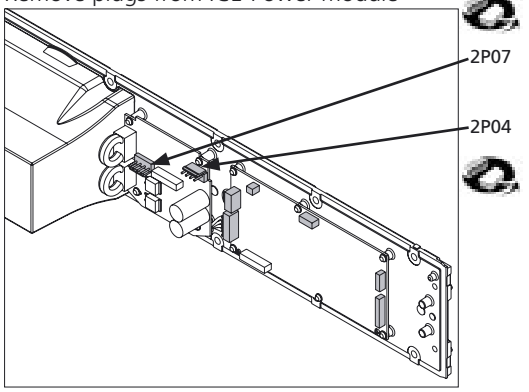
Pull out baffle



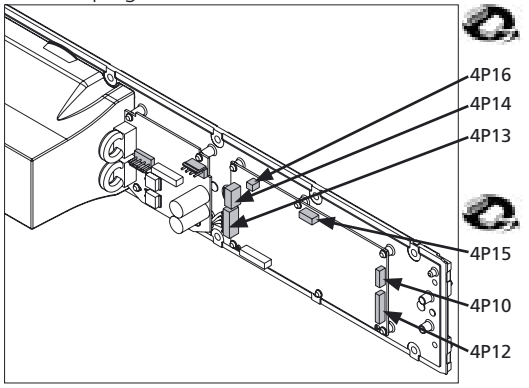
Remove screws, and pull out speakerunits



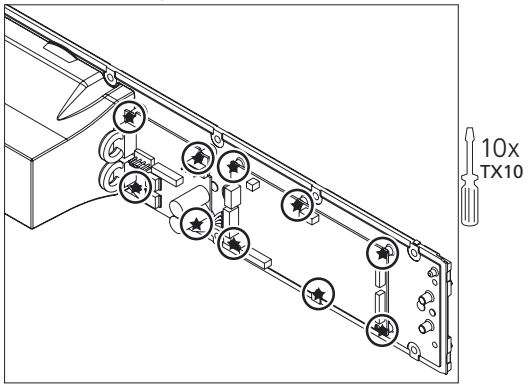
Remove plugs from ICE-Power module



Remove plugs from filter module



Remove screws, and remove modules

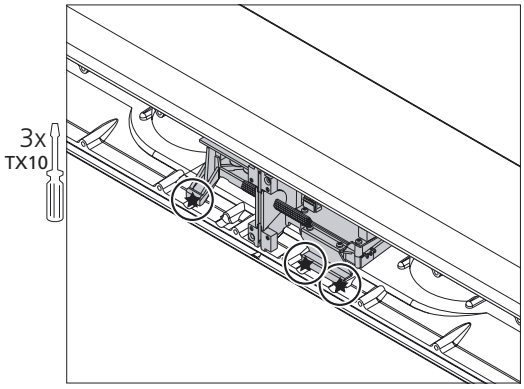


8.1 Remove front cover

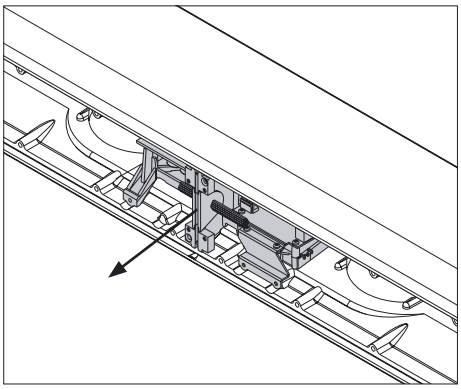
8.2 Remove left baffle

8.1 Remove right baffle

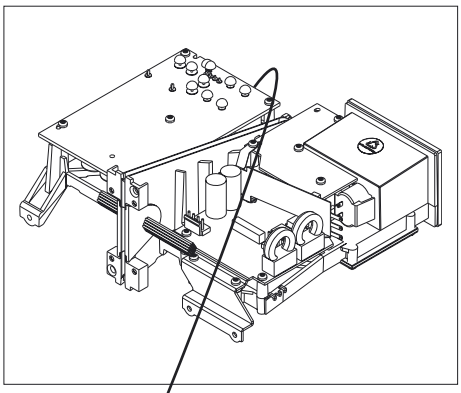
Remove screws

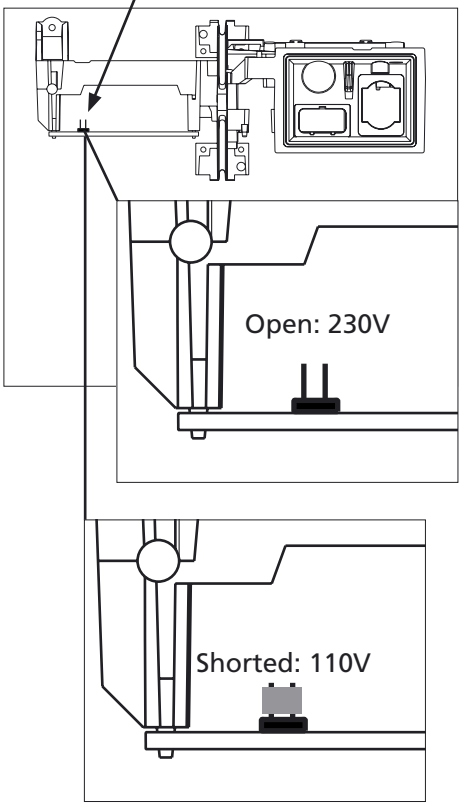


Pull out chassis



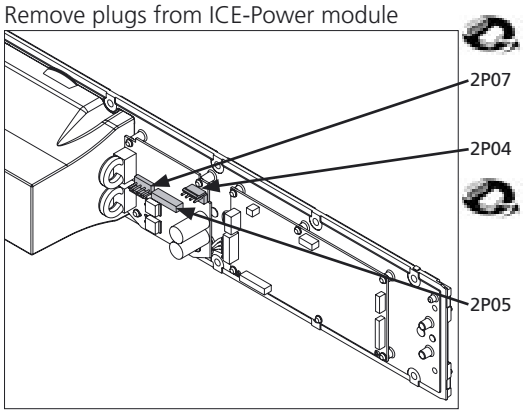
Please notice!





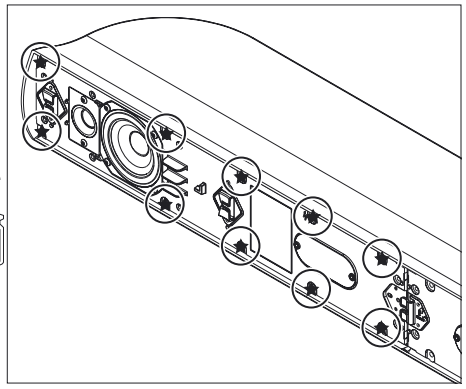
8.1 Remove front cover

Remove plugs from ICE-Power module



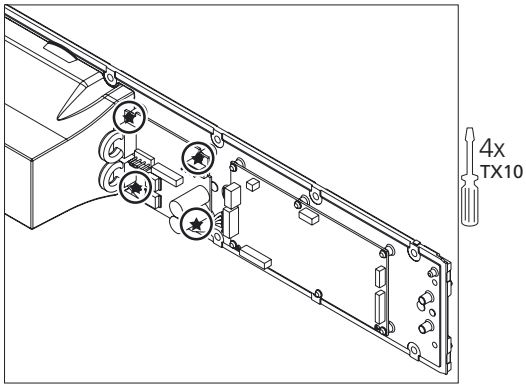
Remove screws

10x
TX20



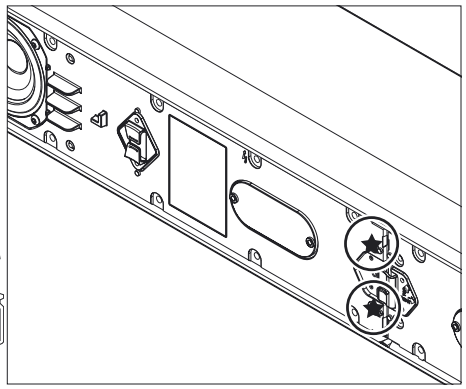
Remove screws, and remove modules

4x
TX10

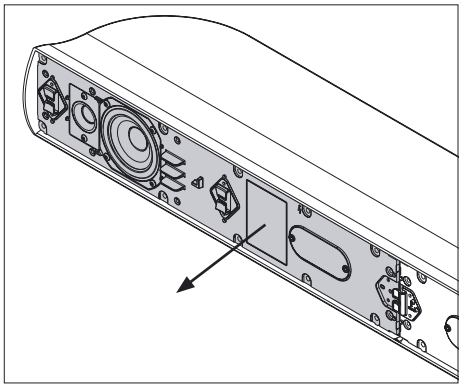


Remove screws

2x
TX10

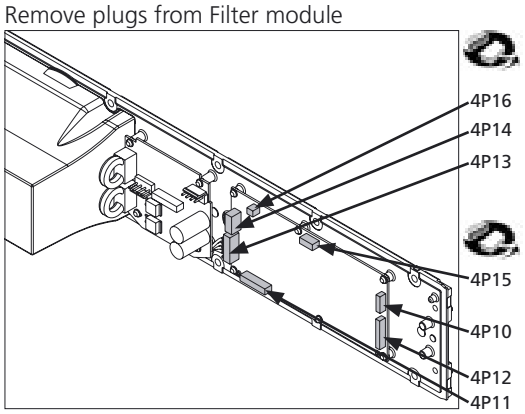


Pull out baffle

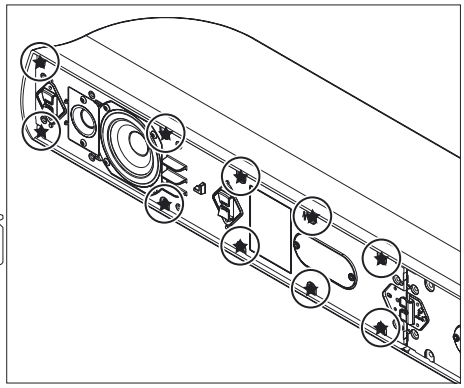


8.1 Remove front cover

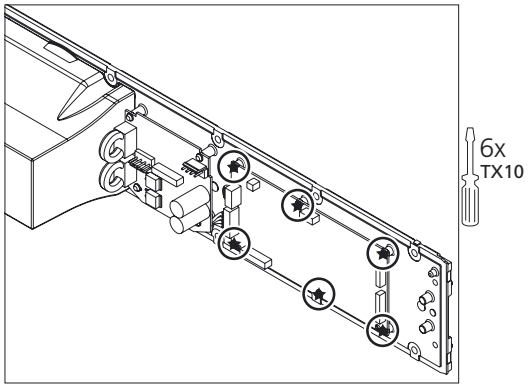
Remove plugs from Filter module



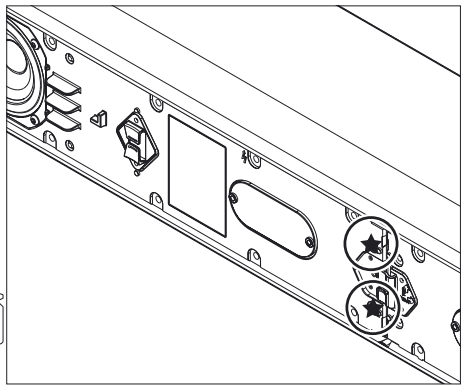
Remove screws



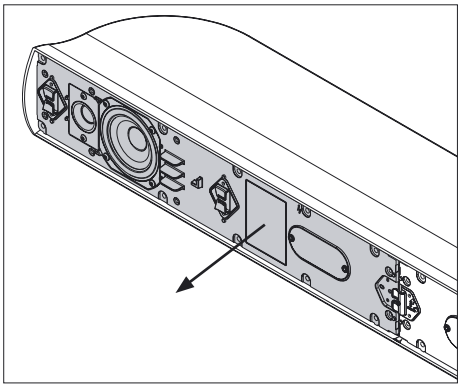
Remove screws, and remove module

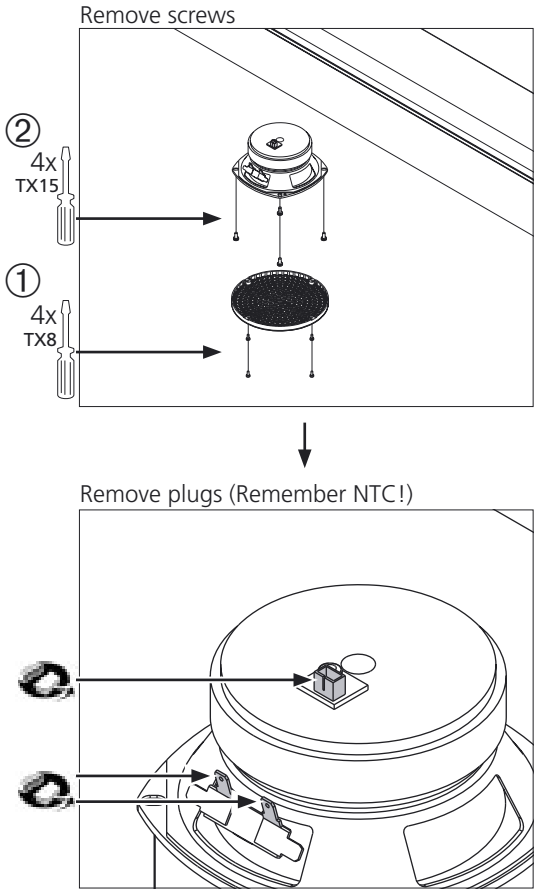


Remove screws



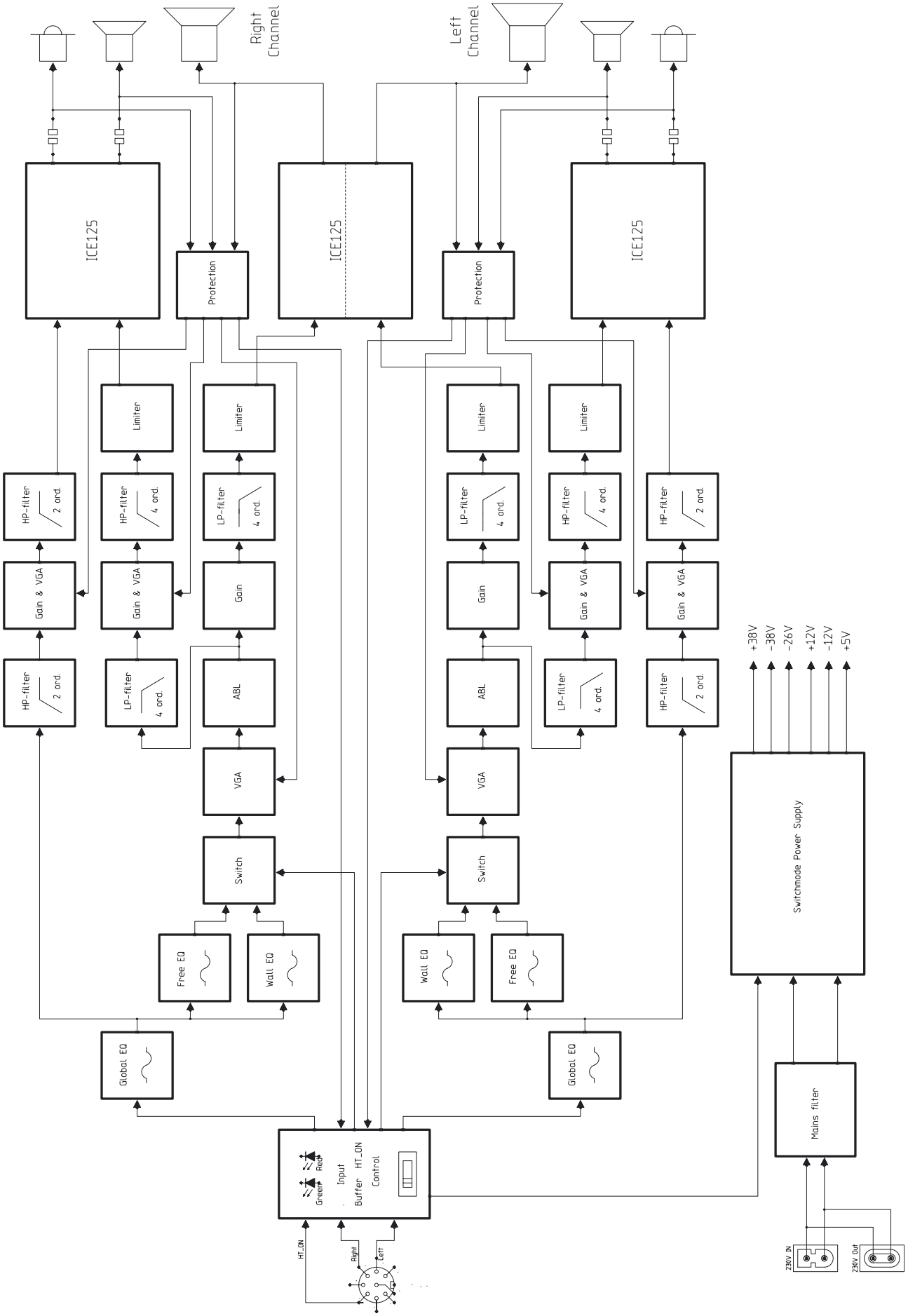
Pull out baffle



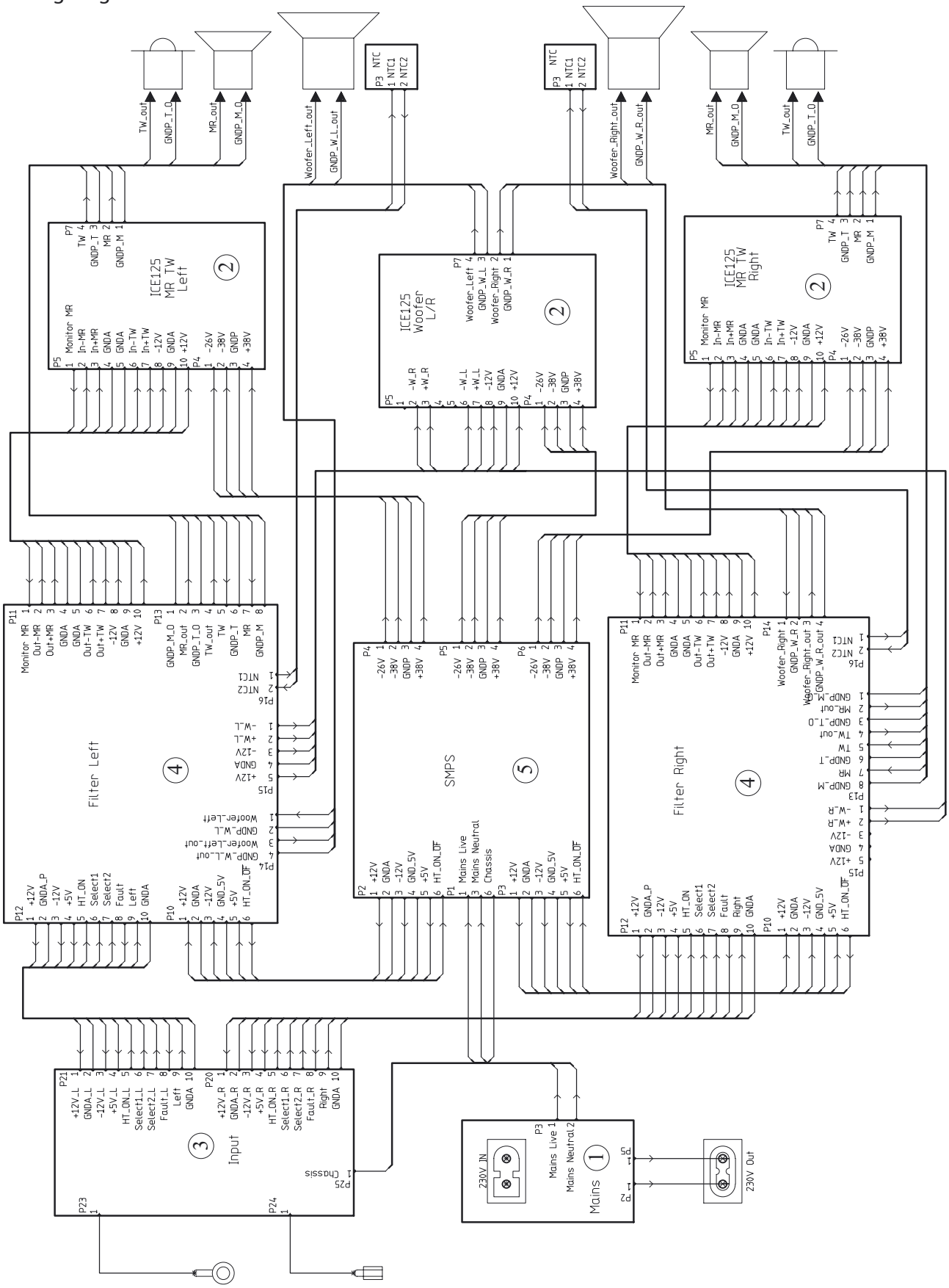

Remove screws
②
4x
TX15
①
4x
TX8
Remove plugs (Remember NTC!)

Specification guidelines for service use	**BeoLab 7 - 1**
Type no. 6210	220-240V (Jumper 5P7 is not mounted)
Type no. 6212	110-120V (Jumper 5P7 is mounted)
Dimensions W x H x D	100 x 11 x 21 cm
Weight	Approx. 10 kg
Cabinet finish	Black and natural coloured aluminium
Input sensitivity	
Power Link	125mV – 88dB SPL
Power Amplifiers	3 for each channel (Class D ICEpower)
Long Term Maximum, output per amplifier	Bass : 120 Watts (8 Ohm)
	Midrange : 120 Watts (8 Ohm)
	Treble : 120 Watts (8 Ohm)
Effective Frequency range	37 – 20.000 Hz
Crossover frequencies	250Hz, 4000 Hz
Cabinet principle	Bass: Bass reflex
	Midrange: Closed box
Magnetically shielded	No
Net volume (per side)	Bass: 4.2 litres
	Midrange 0.8 litres
Woofer	4" (101,6 mm)
Midrange	3" (76.2 mm)
Treble	¾" (19 mm)
Bass equalization	ABL (Adaptive Bass Linearization)
Protection	Thermal protection
Connections	
Power Link - input	1 (PL MKIII Semi-Balanced)
Mains – input	1
Mains – output	1 (Not US)
Indication	1 tri-color LED (For service use only)
Green	On
Red	Stand-by
Orange	Protection
Operations	
Switch for :	Wall – Free
Power consumption	Typical : 20 Watts
	IEC65 : 36 Watts
	Stand-by : 0.2 Watts
Subject to change without notice	

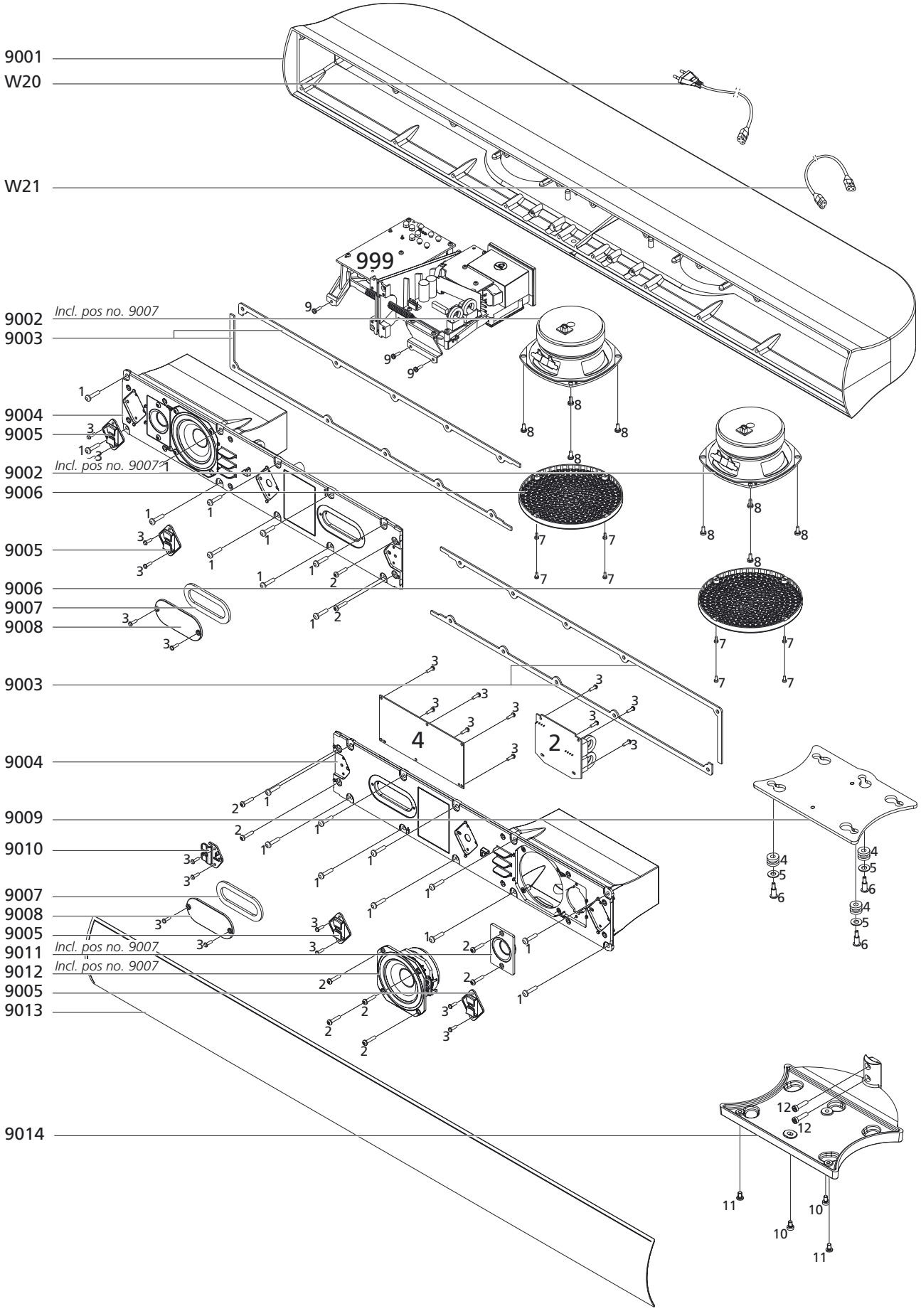
Overall block diagram



Wiring diagram



Available parts
BeoLab 7–1



BeoLab 7–1

9001	3444061	Cabinet complete
9002	8480019	Woofer with NTC, incl. pos. no. 9007
9003	3947148	Gasket for baffle complete
9004	3440060	Baffle complete
9005	3151264	Suspension without lock
9006	3444055	Woofer grill
9007	3947078	Gasket for adjustment lid
9008	3151219	Lid for signal adjustment
9009	3151852	Bracket for BeoLab 7–1
9010	3151263	Suspension with lock
9011	8480015	Tweeter, incl. pos. no. 9007
9012	8480017	Midrange, incl. pos. no. 9007
9013	3444046	Frontgrill complete
9014	3151851	Shelf for BeoLab 7–1
PCB2	8003001	ICE-Power amplifier
PCB4	8003002	Stereo speaker filter
PCB999	8053060	Main chassis ALL
	8053070	Main chassis US
W20	6100047	Mains lead CN
	6100273	Mains lead EU
	6100307	Mains lead US
	6100329	Mains lead GB
	6100332	Mains lead AUS
W21	6100216	Mains lead EU male/female

Survey of screws etc.

1	2054016	Screw 4 x 18mm or 2054052 Screw 4 x 12mm
2	2015139	Screw 3.5 x 16mm
3	2052011	Screw 3 x 10mm
4	2930028	Decoupling
5	2622017	Washer
6	2044001	Screw 6 x 11mm
7	2054038	Screw 2.5 x 8mm
8	2015002	Screw 3.5 x 8mm
9	2054043	Screw 3 x 10mm
10	3390014	Bag with screws and allen keys
11	2058081	Screw 5 x 8mm
12	3390014	Bag with screws and allen keys

Packing

	3396263	Set of foam
	3392201	Outer carton

Wire bundles

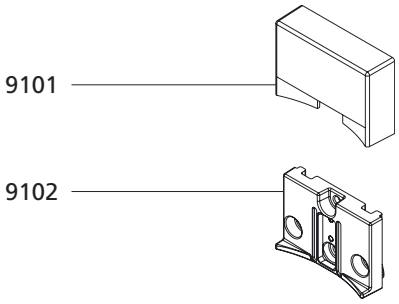
Parts not shown

	3375115	Product cover
	6100216	Powerlink cable 0.5m black
	3395257	Back-up suitcase ALL
	3395258	Back-up suitcase US

Available documentation

Guides, see Retail Ordering System

1217200 Wall bracket



9101	3151853	Cover for Wall bracket
9102	3151854	Wall bracket

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